CHAPTER 3

General Action Guidance

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Background and Context of Chapter

This chapter contains guidance for jurisdictions and organizations interested in selecting, planning, and implementing habitat improvement projects in order to address the common factors of salmon decline that have been identified in the Lake Washington/Cedar/Sammamish Watershed. The chapter offers general recommendations for actions that can be carried out anywhere in the watershed. These recommendations will also be useful in identifying potential regulatory and programmatic actions. Suggested criteria for choosing early actions are given at the end of the chapter.

The recommendations for general actions to address factors of decline were developed by the interjurisdictional WRIA 8 Technical Committee (see Chapter 9, Acknowledgements, for committee roster) and originate in the *Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin* (Washington State Conservation Commission, September 2001). However, some recommendations from that report have been omitted from this chapter to avoid duplication of other parts of the Action Agenda. The suggested criteria for choosing early action projects were also developed by the WRIA 8 Technical Committee. Chapter 4, Project and Research Recommendations Specific to Subareas, gives more site-specific project and research recommendations for the core production, migratory and rearing, and satellite production subareas.

Providing general guidance is useful for two reasons:

- The opportunity to participate in salmon conservation and habitat improvement is not limited to those jurisdictions and geographic areas adjacent to riparian areas or shorelines, because activities well beyond the waterline affect salmon habitat.
- Many of the habitat improvements address conditions that occur across a broad geographic area and are not identified with a specific site.

How to Use This Guidance

Consistent with the preceding points, the general action recommendations listed below can guide jurisdictions and organizations interested in selecting, planning, and implementing salmon habitat conservation projects as well as taking regulatory and programmatic actions. Implementers should follow sound scientific practices, as well as the guiding principles and additional guidance set forth in the near-term strategy (see Chapter 2), to tailor projects to fit on-the-ground circumstances. Implementers will find the suggested criteria for choosing early actions, located at the end of this chapter, useful when deciding which near-term actions to

pursue. In general, these recommendations can be applied to the mainstem rivers as well as tributaries, lakes, and nearshore areas in the watershed.

Entities seeking the endorsement of the WRIA 8 Steering Committee for actions not listed in the Action Agenda but consistent with it may request a review of their proposal by appropriate committees involved in developing the Action Agenda. If the proposal is based on new information, it can follow the adaptive management process recommended in Chapter 7.

General Guidance by Factor of Decline

The general action recommendations given below are organized by the factors of decline for rivers and streams in WRIA 8: fish passage, hydrology, sediment transport, hydromodification, riparian conditions, water quality, and non-native species. Neither the factors of decline nor the recommendations are listed in order of priority. Portions of the recommendations may be addressed as part of other programs under development in the Lake Washington/Cedar/ Sammamish Watershed. Other recommendations focus on the need for data collection and analysis prior to taking additional actions. There are also action recommendations based on existing scientific information about salmon habitat conditions in the watershed.

Fish Passage

- Build on the fish distribution work undertaken as a part of the *Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin* by conducting a comprehensive fish barrier and habitat assessment of upstream habitat throughout WRIA 8.

- Provide efficient fish passage through barriers that limit the number of juvenile and adult salmon reaching productive historic or rehabilitated habitats in freshwater and nearshore environments to allow for natural migration rates, patterns, and timing.

- Reconnect side channel habitats that have been isolated from the main channel of rivers and streams.

- Properly screen all water diversions to avoid fish stranding.

- Assess the impacts of groundwater and surface water withdrawals on fish passage and salmon habitats.

- Avoid construction or addition of nearshore fill, armoring, dikes, and overwater structures that would disrupt normal migration rates and patterns or limit access to shallow feeding and refuge areas.

Hydrology

- Investigate the impacts of surface water and groundwater withdrawals on tributary stream subbasins and mainstem hydrology; evaluate the effects on salmon.
- Manage mainstem and tributary river flows to more closely emulate the natural flow regime that promotes habitat-forming processes (for example, creation and maintenance of side channels, pools, river meanders) and long-term salmon survival (for example, incubation/fry emergence, flood refuge areas, migration).
- Conduct a watershed-wide investigation of legal and illegal surface water and groundwater withdrawal.
- Perform a regionally consistent baseline assessment of existing conditions and current land use impacts on the natural stream hydrology. Studies should be carried out on a subarea or a smaller scale to help prioritize conservation efforts. A similar assessment is needed on an appropriate scale for the nearshore.
- Protect the natural headwater areas of rivers and streams.
- Protect and restore natural stream flow conditions sufficient for salmon spawning, incubation, rearing, and migration.
- Determine areas where floodplain connectivity can be restored through the removal or modification of levees and dikes.
- Avoid the establishment of hydrologic regimes that are detrimental to the survival of fish.
- Identify and protect important areas of groundwater recharge that contribute to the maintenance of baseflow conditions.

Sediment Transport

- Identify the source of excessive fine sediment accumulation in streams and reduce or eliminate these accumulations.
- As deemed appropriate, repair all culverts to allow the passage of adult and juvenile salmon, organic matter, and sediment.
- Eliminate or minimize increased sedimentation that can result from new construction and development.
- Continue Lake Sammamish's sediment control program and expand to the rest of the watershed.

- Monitor streambed scour and deposition on a watershed-wide basis and take remedial actions where necessary.

- Determine current and historic sediment sources, distribution patterns, and budgets in the Lake Washington/Cedar/Sammamish Watershed, including the nearshore. Compare current and historic conditions to identify the extent to which sediment transport processes require restoration.

Hydromodification

- Reestablish and protect side channel habitat along the banks of rivers (for example, Cedar River) and streams as appropriate.

- Encourage the natural channel migration of streams and rivers.

- Remove or set back flood and erosion control facilities whenever feasible, to allow for the reestablishment of natural-habitat-producing stream and estuarine shoreline processes.

- Where levees and revetments cannot be practically removed or set back due to infrastructure considerations, maintain and repair them using design approaches that maximize the use of native vegetation and large woody debris.

Riparian Conditions

- Conduct a regionally consistent, detailed assessment of current riparian conditions throughout the watershed to determine functional value and to evaluate potential protection, enhancement, and restoration opportunities and constraints.

- Establish, enhance, and protect appropriately sized riparian buffers around rivers, streams, wetlands, lakes, and marine nearshore areas to protect salmon habitat and prevent the compromise of salmon conservation efforts; base these buffers on scientific data and principles of landscape ecology, and ecosystem and conservation biology, as well as long-term feasibility.

- Protect riparian habitat and shorelines (streambanks, lakeshores, and nearshore) from degradation resulting from human activities.

- Continue and enhance educational activities based on the WRIA 8 technical reports; provide technical training, materials, and other

assistance that encourage individual actions; teach skills necessary to protect and restore salmon habitat.

- Avoid the construction of roads within the floodplain and riparian areas.
- Protect and preserve areas containing mid- to late-stage riparian habitat.
- Replant existing degraded riparian habitats with an emphasis on native plant species that will contribute to bank stabilization and become a future source of large woody debris in stream, lake, and estuarine ecosystems.
- Identify the appropriate conditions under which levee construction and vegetation maintenance programs, regulations, and guidelines will allow the propagation of native riparian vegetation upon these structures to provide shade and restore instream habitat processes.
- Reexamine levee construction and vegetation maintenance programs, regulations, and guidelines to allow propagation of native riparian vegetation buffers.

Water Quality

- Protect or restore water temperature regimes that support all phases of salmon life history.
- Protect significant source areas (especially connected and isolated wetlands) of groundwater infiltration that contribute to stream water temperature control, especially during seasonal low-flow conditions.
- Protect or restore significant groundwater to surface water interfaces.
- Replant mainstem, tributary, and nearshore riparian areas with native coniferous and deciduous plant communities to lower water temperature through increased shading, to improve soil stability, and to increase terrestrial insect production and input as necessary.
- Reduce or eliminate sources of detrimental metals and organic and inorganic contaminants from all bodies of water in the watershed.
- Reduce the discharge of pesticides and organic compounds into all surface water within the watershed.
- Reduce excess nutrient loading in areas that are sensitive to excessive nutrient loading or excessive primary production (for example, Lake Sammamish).

Non-Native Species

- Prohibit introduction of non-native animal and terrestrial plant species that have a direct impact on salmon through predation, competition, and potential genetic interactions.
- Remove or control non-native aquatic plants that have an adverse impact on salmon survival.
- Determine interactions of non-native fish species with salmon.
- Investigate the impacts of non-native aquatic vegetation and non-native vegetation management activities on salmon growth and survival.

Criteria for Choosing Early Actions

The following criteria are suggested for choosing actions from the Action Agenda or for proposing other early actions that may have value in salmon conservation in the Lake Washington/Cedar/Sammamish Watershed. The Action Agenda does not prioritize projects identified in Chapter 4, Project and Research Recommendations Specific to Subareas; however, the criteria below can help to set priorities for early action. In general, these criteria can be applied to protection, reconnection, restoration, enhancement, programmatic, regulatory, and research actions. However, these criteria may not be the best to follow when deciding on public outreach actions, because outreach actions often have indirect rather than direct benefits for salmon and their habitat. For example, many important public outreach actions raise public awareness and build long-term support for salmon conservation planning, but do not directly change habitat conditions for salmon. Please refer to Chapter 6, Education and Public Involvement, for additional direction on this type of early action.

The early action criteria are in two tiers. The first tier is intended to be met by every project in order for the project to be considered. The Tier 2 criteria are simply accumulative; the more criteria the project meets, the more confidence there is in its usefulness for conservation. Tier 2 criteria are not ranked by importance.

Tier 1

- The action will benefit chinook salmon and is in a core or satellite production subarea or a migratory and rearing corridor subarea for chinook salmon (as identified in Chapter 2, Near-Term Strategy).

or

- The action addresses a harmful activity or condition that poses an immediate threat to an at-risk population or habitat, or will, if unattended, prevent recovery of that population of salmon or salmon habitat.

Tier 2

- The action addresses a factor of decline.
- The action addresses a critical information gap.
- The action is necessary for other actions to proceed.
- The action is protective or preventive in nature.
- The action does not depend on other actions for success.
- The action can be carried out within 2 to 5 years.
- Objectives of the action are clear.
- The context of the action is clear (how it fits with conservation).
- There is confidence in the successful outcome of the action.
- Results of the action will be observed within 2 to 5 years.
- The action is consistent with the guidance described above and in the near-term strategy. (Please see Chapter 2.)

In addition, the following elements should be addressed in regard to on-the-ground restoration and enhancement projects:

- Identify baseline data supporting the proposed design.
- Design projects that are rooted in hydrogeomorphic analysis and allow for clear evaluation of the intended physical outcome.
- Design the monitoring element to be hypothesis-based and rooted in experimental design that allows for clear evaluation of the intended physical and biological outcome.
- Commit to long-term monitoring and evaluation.
- Recognize that restoration projects are an experiment.
- Use adaptive management to recognize and apply knowledge gained from the results of experimental projects.